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(71) Applicant
Garry Martin Beasley
 2 Laith Garth, Irelandwood, Leeds, LS16 6LD,
 United Kingdom

(72) Inventor
Garry Martin Beasley

(74) Agent and/or Address for Service
Bailey, Walsh & Co
 5 York Place, Leeds, LS1 2SD, United Kingdom

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A46B 5/00

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(56) Documents cited
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US 4796325 A **US 4731896 A** **US 3868742 A**
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(58) Field of search
 UK CL (Edition L) **A4K KCA KCB KEA KEX KFX**
 INT CL⁵ **A46B**

(54) **A brushing implement having an angularly adjustable head**

(57) The brushing implement e.g. a toothbrush comprises a head 4 and a handle 2 wherein said head 4 is adjustable and positionable angularly in relation to the handle 2 by the use of shaped location means 8, (10, Fig. 3). The angular adjustment capability allows the user to adjust the angle of the brush to suit the specific brushing requirements at any one time. Furthermore the head 4 can be provided with a second location means (22, Fig. 5) for the location therein of a bristle block (Fig. 4) which can be removed and replaced with a new bristle block or by a block with a bristle formation to suit specific requirements.

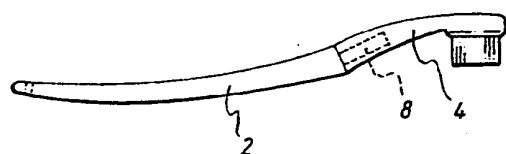


FIG. 6A

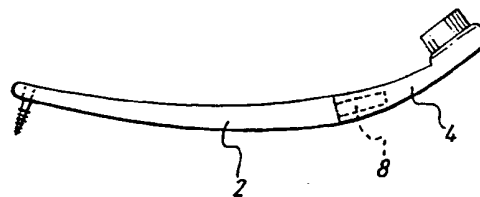


FIG. 6B

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

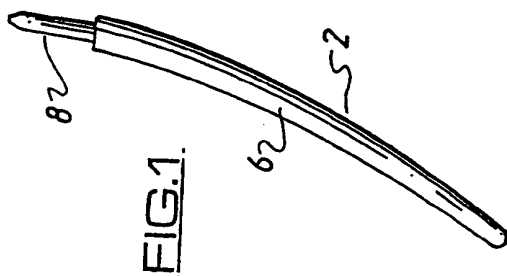


FIG. 1.

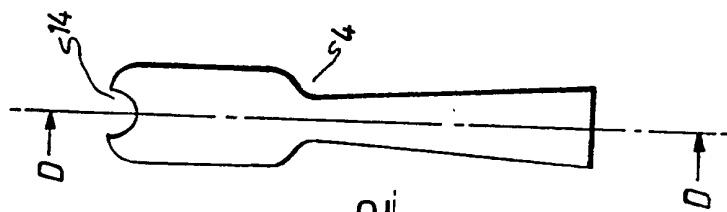


FIG. 2.

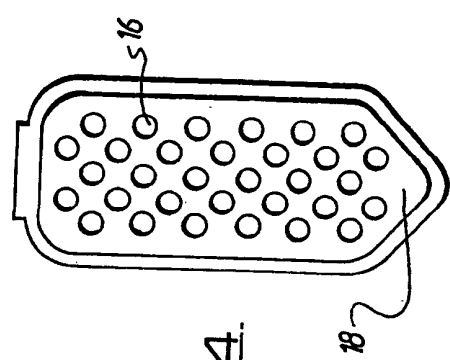


FIG. 4.

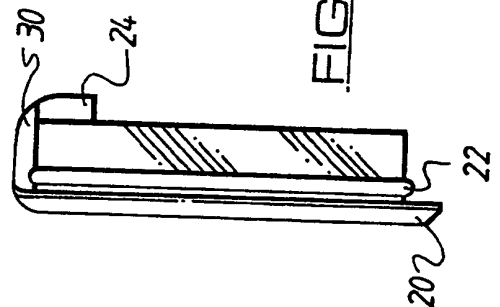


FIG. 5.

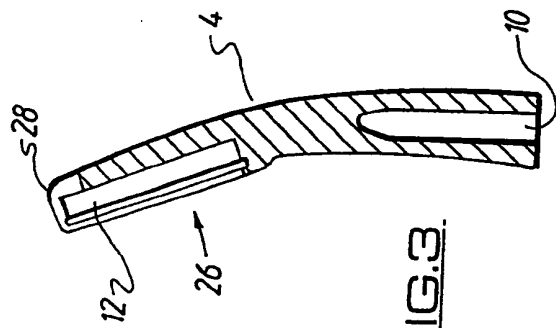


FIG. 3.

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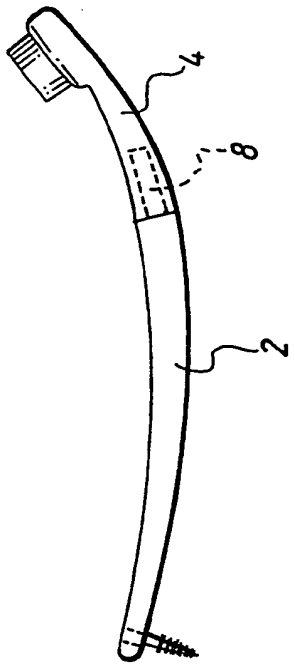


FIG. 6A

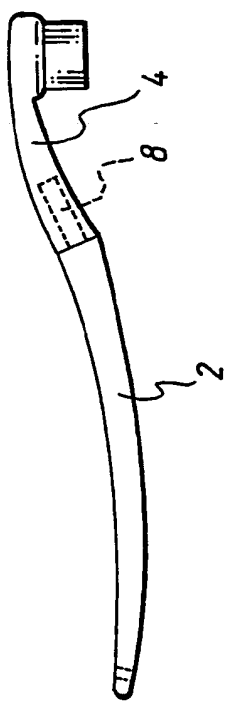


FIG. 6B

FIG. 6B

2-3

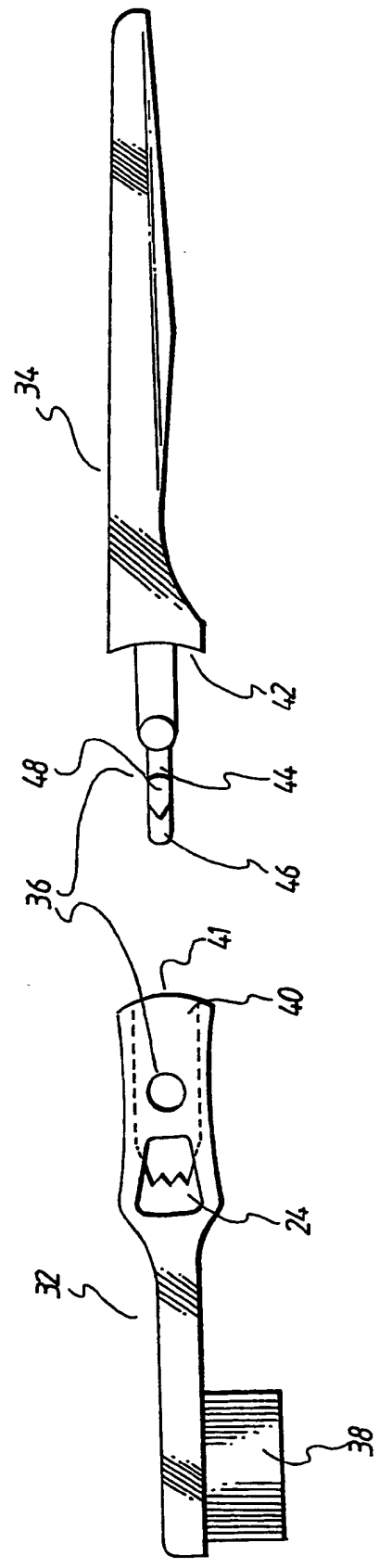


FIG. 7

3-3

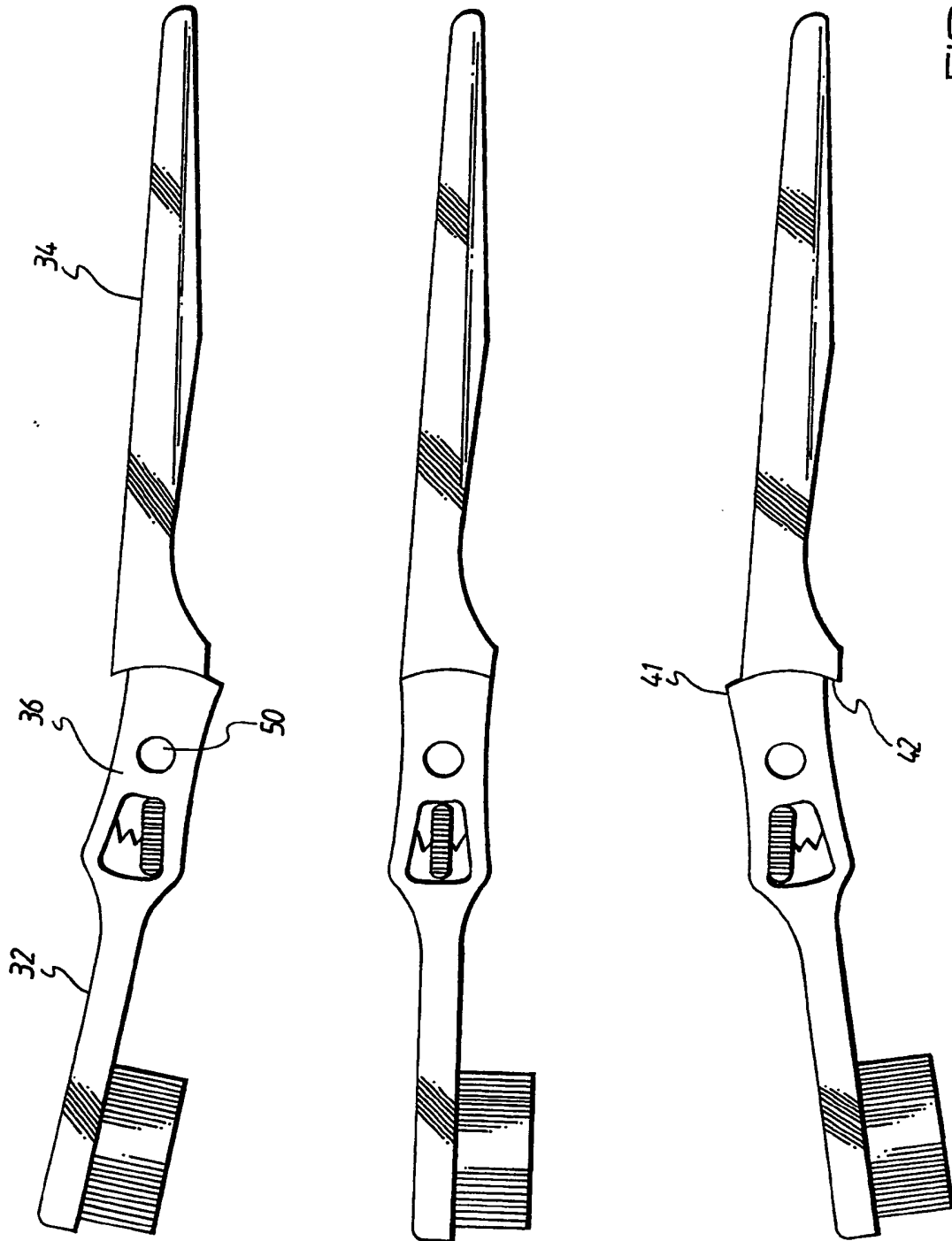


FIG. 8.

Improvements Relating to a Brushing Implement

The current invention relates to a brushing implement comprising a brush head and a handle in which there is provided the facility to remove the head from the brush handle and also to mount the said head at an angle relative to the handle to suit the user. It is envisaged that the invention will be particularly useful when applied to a toothbrush however this should not be taken as the exclusive use of the invention.

The toothbrush is an important part in the provision of personal hygiene and is an article owned by the vast majority of the population. The object of the article is, in combination with toothpaste, to help maintain teeth in a clean and healthy state. In order to improve the efficiency of the toothbrush constant research is undertaken to try and improve the shaping and adaptability of the toothbrush to suit the mode of use. It is apparent that if the general public perceive a new design of toothbrush to be of advantage then they will purchase the same in large quantities.

There are many varieties of toothbrush presently available to the public. One such type is the toothbrush with an angled handle, said handle angled in an attempt to aid the use of the toothbrush in a persons mouth. Although the idea of angling the handle improves the use of the toothbrush at certain points in the persons mouth there are two major problems which cannot be overcome. The first problem is that as the toothbrush is used so the angle of approach to the teeth changes and so the shaping of the handle is not suited to use of the toothbrush in certain parts of the mouth. Secondly, no one person's mouth is exactly the same shape therefore it is impossible for an angled handle to suit every

person.

The second type of toothbrush involves the use of a detachable head which allows the replacement of toothbrush bristle heads when they are worn or unhygienic. Typically the location devices for said heads with the toothbrush handle are either complex or consist of a hole and lipped plug device. There are inherent problems with both of these methods however. The complex fitting devices such as screw threads tend to become clogged up with dried toothpaste and require frequent cleaning of parts which are not easily accessible. The more simple location means have an inherent risk to the user of the detachable head detaching from the handle during vigorous use of the toothbrush. This can be potentially dangerous to the user with the loose head in their mouth.

The aim of the present invention is to provide a toothbrush which overcomes the aforementioned problems and wherein there is provided the facility to adjust the angle of the toothbrush head relative to the handle to suit the user. Furthermore there is also provided the facility to remove and replace the toothbrush head at the required angle wherein said detachable head can be easily and securely located to the toothbrush handle.

The invention provides a brushing implement comprising a head and a handle wherein said head and handle are provided with location means such that said head is mountable on said handle at a plurality of angular positions relative to said brush implement handle.

In a first aspect of the invention preferably said brushing implement head is capable of being locked in position at the desired angle position.

Preferably the angle of said brushing implement head can be altered during use and without removal of the head from the handle.

Preferably there shall be provided in the brushing implement head a transverse slot which will allow the location means to be cleaned of any foreign matter.

In one embodiment the head and handle will be angularly movable about a pivot point and said pivot point will be provided at the location means of the brushing implement and the opposing end faces of the brushing implement head and handle will matchingly engage to ensure ease of angular movement.

Typically said brushing implement shall be a toothbrush.

In a second aspect of the invention there is provided a brushing implement head with a location means for location with a brushing implement handle, said brushing implement head detachable from the brushing implement handle by release of the location means wherein said location means allow the brushing implement head to be angularly positioned in a plurality of positions with respect to the handle.

Preferably said brushing implement head shall be held in a fixed position at the desired angle during use.

Typically said location means will comprise a matching female part formed in one of the ends of the handle or head and a male part means formed in the other part.

Typically said male location means will be formed and shaped such that the position of the male means in relation to the

shaped and formed female means will determine the particular angle of the brush head. The rotation of the male means in relation to the female means will result in a variation in the angle of the head relative to the handle.

Preferably there will be at least two possible angular positions for the head relative to the handle.

Preferably release of said location means will require a twist action force to be applied to the catching means to allow the handle to be removed from the brushing implement head. To ensure that the head does not move relative to the handle during use a friction fitting or taper arrangement will be provided between said handle and head.

Typically the said handle will be capable of location with the brushing implement head with the handle grip facing upwardly or downwardly.

In another aspect of the invention there is provided a brushing implement head with a location means formed therein wherein said location means allows for the location therein of a bristle block.

Preferably there is provided two location means formed therein wherein said first location means as aforementioned allows the brushing implement head to be held in a straight position or angled relative to the handle when fitted and said second location means allows for the location therein of a bristle block.

Typically said bristle block will be engageable by snap fitting said block into said second location means. The provision of removable bristle blocks will allow worn bristle block to be removed and replaced by a new block. This allows

the remainder of the brush to be retained. Alternatively a bristle block may be removed and replaced by another bristle block containing bristles in a format for a specialist purpose.

In another aspect of the invention there is provided a toothbrush head located with the toothbrush handle as aforementioned wherein at the other end of the handle there is provided means for the location of an interproximal brush.

The interproximal head will be capable for use between larger gaps in teeth, round crowns, bridges, orthodontic appliances and the inner surfaces of teeth. The interproximal brush head removes plaque and food debris from the more exposed surfaces of the teeth. This will be made with a taper or friction fit base which will be attachable to the handle.

In another aspect of the invention there is provided a brushing implement incorporating therein a locking location means as described herein.

An embodiment of the invention will now be described with reference to the accompanying drawings wherein;

Figure 1 shows in elevation the handle element of a first embodiment of the invention,

Figure 2 shows in plan the head element of the first embodiment

Figure 3 shows a cross section through DD of Figure 2

Figure 4 illustrates in plan a bristle block of the first embodiment

Figure 5 illustrates in side elevation the bristle block

Figure 6 illustrates two of the possible angular positions of the brushing implement of the invention and the interproximal attachment

Figure 7 illustrates the components which combine to form the toothbrush of the invention in a second embodiment in elevation,

Figure 8 shows in elevation the angular movement of the toothbrush of the embodiment shown in Figure 7;

Referring firstly to Figures 1, 2 and 3 there is shown a handle element 2 and a head element 4 which when joined together form the brushing implement of the first embodiment. The handle 2, comprises a shaped plastic section 6 and a male location means 8. The head 4 comprises a first female location means 10 as shown in Figure 3 and a second location means 12. Said first location means is formed such that when the male location 8 of the handle fits therein, the head and handle are securely located to form the brushing implement of the invention. Also provided at the tip of the head 4 is a finger push button cut out 14. The said head is shaped to meet optimum angle requirements for a toothbrush. As can be seen from Figure 3 the locating element 10 is formed internally of the brush head 4 and therefore is not visible during normal use.

Figures 4 and 5 illustrate a bristle block of the first embodiment of the invention wherein said bristle block incorporates a plurality of clumps of bristles 16 mounted on a moulded plastic part 18. Said plastic part 18 has formed therein the bristle mounting part 20, a location means 22 and a finger push button 24 formed to engage with the cut out 14

in the head of the brushing implement.

Figure 6 illustrates the bristle block, head 4 and handle 2 in located engagement forming the brushing implement of the invention. As shown in Figure 6A there is a first straight position of the head relative to the handle and a second angular position in Figure 6B of the head relative to the handle. This ability to adjust the angle of the head relative to the handle is provided by the shaping of the male and female location means 8 and 10 which allow the head to be adjustably located with the male member 8 at an angle to suit the use to which the toothbrush is to be put.

To alter the angular position of the head relative to the handle, the head can be twisted from the male member 8 of the handle 2 and rotated relative to said member and then refitted to the male member 8 at the required angle. In this embodiment there are two specific angles provided by the shaping of the male member 8 relative to the female location means 10 however it is envisaged that a plurality of said angular positions can be provided in any one toothbrush. To fit the bristle block to the head 4 requires a snap fit arrangement in direction 26 as illustrated in Figure 3 wherein the bristle block location means 22 are slidably engaged in corresponding slots 28 formed in the location means of the head. The bristle block when in a fixed position has provided therein a finger push button 24 which matchingly engages the cut out slot 14 and the outer wall 30 of said bristle block serves to seal the outer face of the toothbrush when fitted. To release the clip requires a pressing action on the finger push button 24 which presses the toothbrush out of the location means 22 and 28. Thus the said bristle block can be removed and replaced when worn or replaced for a specialised bristle formation for specific purposes.

Figures 7 and 8 illustrate a second possible embodiment of the invention wherein Figure 7 shows a toothbrush head 32 a handle 34 and location means 36. The toothbrush head comprises a series of brush bristles 38 and has formed at one end a female location means 40 and an end face 41. The female location means comprises a longitudinal slot formed therein and a transverse slot passing through the head. The handle 34 has formed at one end an end face 42 and a male location means 44 comprising a centre prong 46 and two sprung catches 48 with outer facing surfaces forming lugs to catch engagingly with the location means in the head 32.

Figure 8 illustrates the various angles of the toothbrush head 32 relative to the handle 34 which may be achieved through movement of the location means 36. Movement is achieved by the matching shapes of the end faces 41 and 42. The construction of this embodiment requires the user selecting a toothbrush head 32 and slotting this onto the toothbrush handle 34 to arrive at the toothbrush as shown in Figure 8. The design of the location means 36 ensures that when the lugs of the handle are engaged with the slot in the head the toothbrush is located onto the handle 34. To remove the toothbrush head 32 from the handle 34, the lugs are pressed inwardly towards the centre of the toothbrush and this serves to disengage the handle from the head and hence the head 32 can then be removed by sliding in a direction away from the handle. There is also provided to the user the option of altering the angle of the toothbrush head 32 relative to the handle 34 which can be done by applying pressure on the lugs inwardly and the head can then be raised or lowered about a pivotal point 50 as shown in Figure 8.

The toothbrush of the invention, in either of the embodiments so described provides the user with the option of placing the

head of the toothbrush at an angle relative to the handle to suit the user such that the toothbrush is most effective in use. Furthermore the user can also replace the bristle block by detaching the bristle block. This negates the need to purchase a new toothbrush and also provides the user with the opportunity to use a toothbrush which suits their particular needs. The location and securing means provided by the invention will ensure that the toothbrush is easy to operate yet is safe to use no matter how vigorous the brushing action.

CLAIMS

1. A brushing implement comprising a head and a handle wherein said head and handle are provided with location means such that said head is mountable on said handle at a plurality of angular positions relative to said brush implement handle.
2. A brushing implement as in Claim 1 wherein said head and handle are maintained in a secured position when in use.
3. A brushing implement as in Claim 2 wherein said head and handle are maintained in a secured position by means of a friction fitting and taper.
4. A brushing implement as in Claim 1 wherein the angular position of the head relative to the handle is adjustable without complete removal of the head from the handle.
5. A brushing implement head and handle as in Claim 1, said head has formed therein location means for location with a brushing implement handle, said head detachable from the handle by releasing the location means and wherein said location means are so formed and shaped to allow the head to be angularly positioned in a plurality of positions with respect to the handle.
6. A brushing implement as in Claim 5 wherein said location means comprise a female part formed in the end of either of the handle or head and a male part formed in the end of the other part.
7. A brushing implement as in Claim 6 wherein said male location means will be formed and shaped such that the fitted position of the male means relative to the female means

determines the angle of the head relative to the handle.

8. A location means as in Claim 7 wherein the twist rotation of the head relative to the handle will result in a variation in the angular position of the head relative to the handle.

9. A brushing implement as in Claim 5 wherein there is provided at least two angular positions of the head relative to the handle.

10. A brushing implement comprising a head piece and a handle piece wherein said head piece has formed therein at least one location means wherein said location means allow for the location therein of a bristle block.

11. A brushing implement as in Claim 10 wherein said implement head piece has formed therein a first location means for location of the head in angular position relative to the handle piece, and a second location means for location of a bristle block therein.

12. A bristle block as in Claim 10 wherein said bristles are to be used for the brushing action and said block is releasably engageable into the head location means by way of snap fit.

13. A bristle block as in Claim 12 wherein said bristle block will have provided therein a formation of bristles to suit particular requirements.

14. A brushing implement as in Claim 1 comprising a head piece and a handle piece and wherein said handle piece, at the opposite end from the location means with the head there has provided means for the location of an interproximal brush with a taper friction fit.

15. A brushing implement as in Claim 1 wherein there is provided in the head a transverse slot to allow the location means to be cleared of any foreign matter.

16. A brushing implement as in Claim 15 wherein said head and handle are moveable about a pivot point and said pivot point is provided at the location means of the brushing implement.

17. A brushing implement as in any of the preceding Claims wherein said brushing implement is for use as a toothbrush.

18. A brushing implement as herein described with reference to the accompanying description and drawings.

Patents Act 1977

**Examiner's report to the Comptroller under
Section 17 (The Search Report)**

Application number

GB 9222567.1

Relevant Technical fields

(i) UK Cl (Edition L) A4K (KCA, KCB, KEA, KEX, KFX)

(ii) Int Cl (Edition 5) A46B

Search Examiner

DR C L DAVIES

Databases (see over)

(i) UK Patent Office

(ii)

Date of Search

28 FEBRUARY 1993

Documents considered relevant following a search in respect of claims 1-9, 14-18

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB 0310535 A (CHAUSSE) see whole document	1, 2, 4, 17
X	EP 0396764 A1 (UEHARA) see figures and page 4 lines 22-23	1, 2, 4, 5, 9, 17
X	US 5033154 A (MARCHAND) see whole document	1-7, 8, 9, 17
X	US 4796325 A (BORTMAN) see Agures and column 6 lines 6-8	1-4, 17
X	US 4731896 A (DE LA TOUR) see whole document	1, 2, 4, 14, 17
X	US 3868742 A (BRENNER) see figures	1, 2, 4, 17
X	US 3604044 A (JONNISON) see figures	1, 2, 4

SF2(p)

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Category	Identity of document and relevant passages	Relevant to claim(s).

Categories of documents

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